

Notice of Allowability

Application No.

09/742,029

Examiner

Zandra V. Smith

Applicant(s)

ZHAO ET AL.

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 14 August 2003.
2. ☒ The allowed claim(s) is/are 1-103.
3. ☒ The drawings filed on 20 December 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 5 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. <u>0803</u> | 6 <input type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other _____ |

DETAILED ACTION

Allowable Subject Matter

Claims 1-101 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, taken alone or in combination, fails to disclose or render obvious, a system for measuring one or more parameters of a periodic structure that includes directing a polychromatic beam of radiation to a structure dividing collected radiation into two collected rays having different polarization states and detecting the two rays to provide two outputs, in combination with the rest of the limitations of claims 1, 6, and 39.

As shown in claims 12, 16, 29, 34, 45, and 51, the prior art of record, taken alone or in combination, fails to disclose or render obvious, a system for measuring one or more parameters of a periodic structure that includes directing a polychromatic beam of radiation to a structure and altering the first angle between two planes of polarization to a different value and repeating the step, an instrument for rotating the first element relative to the plane of incidence, and a second instrument causing translational motion between the first instrument and the system in a second direction transverse to the first direction, in combination with the rest of the limitations of the claims.

As shown in claims 23, the prior art of record, taken alone or in combination, fails to disclose or render obvious, a system for measuring one or more parameters of a periodic structure that includes directing a polychromatic beam of radiation to a structure and first and second optical elements attached together, in combination with the rest of the limitations of the claims.

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As shown in claims 81, 92, and 99, the prior art of record, taken alone or in combination, fails to disclose or render obvious, a wafer measurement system that includes analyzing characteristic signatures of a wafer using a scattering model for possible periodic structures on a wafer to obtain a measure of the patterned features on the wafer, in combination with the rest of the limitations of the claims.

As shown in claim 101, the prior art of record, taken alone or in combination, fails to disclose or render obvious, a method for measuring a wafer within a wafer process tool that includes translating the optical head to a perform multiple measurements and measuring optical characteristics of the wafer by detecting radiation scattered from patterned features on the wafer, in combination with the rest of the limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (703) 305-7776. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

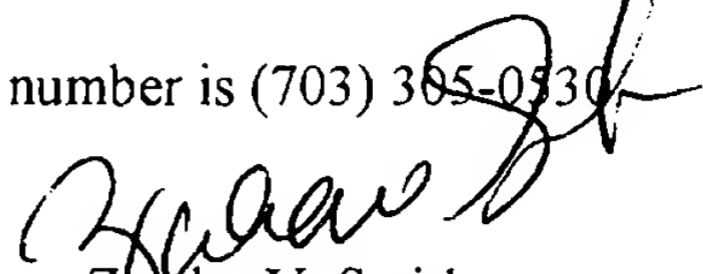
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (703)308-4881. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0530.



Zandra V. Smith
Primary Examiner
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